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THE CCTC QUICK-REACTING GENERAL WAR GAMING SYSTEM (QUICK). USER--ETC(U)
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DEFENSE COMMUNICATIONS AGENCY
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TECHINCAL CENTER
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REFER TO: C314

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TO: RECIPIENTS

SUBJECT: Change 4 to Users Manual CSM UM 9-74, Volume III, Weapon Allocation Subsystem

1. Insert the enclosed change pages and destroy the replaced pages according to applicable security regulations.

2. A list of Effective Pages to verify the accuracy of this manual is enclosed. This list should be inserted before the title page.

3. When this change has been posted, make an entry in the Record of Changes.

FOR THE DIRECTOR

60 Enclosures
Change 4 pages

J. DOUGLAS POTTER
Assistant to the Director
for Administration

AD1011436

EFFECTIVE PAGES - JUNE 1977

This list is used to verify the accuracy of CSM UM 9-74, Volume III after change 4 pages have been inserted. Original pages ara indicated by the letter 0, change 1 pages by the numeral 1, change 2 pages by the numeral 2, etc.

Page No.	Change No.	Page No.	Change No.
Title Page	0	176	0
ii	1	177-178	4
iii-v	4		
vi	1		
vii	4		
viii	0		
ix-xi	4		
1-6	4		
7-8	0		
9-46	4		
47-65	0		
66	4		
67-69	0		
70-71	4		
72-121	0		
122	4		
123-125	0		
126-127	1		
128	2		
129	3		
130	2		
130.1-130.2	1		
131	1		
132	3		
133	1		
134	2		
135-136	1		
137-140	0		
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ABSTRACT

The computerized QUICK-Reacting General War Gaming System (QUICK) will accept input data, automatically generate global strategic nuclear war plans, provide output summaries and produce input tapes for simulator subsystems external to QUICK. QUICK has been programmed in FORTRAN for use on the CCTC HIS 6000 computer system.

The QUICK Users Manual consists of four volumes: Volume I, Data Management Subsystem; Volume II, Weapon/Target Identification Subsystem; Volume III, Weapon Allocation Subsystem; Volume IV, Sortie Generation Subsystem. The Users Manual complements the other QUICK Computer System Manuals to facilitate application of the war gaming system. This volume, Volume III, provides instructions for using the Weapon Allocation subsystem. It is intended for the CCTC user/analyst who is concerned with preparing the data base for a war game, selecting optional features of the system, designating control parameters, submitting computer jobs, and analyzing computer output. Companion documents are:

a. PROGRAM MAINTENANCE MANUAL
   Computer System Manual CSM MM 9-77 Volume I
   Computer System Manual CSM MM 9-77 Volume II
   Computer System Manual CSM MM 9-74 Volume III
   Computer System Manual CSM MM 9-74 Volume IV
   Provides detailed instructions for maintenance of the system

b. TECHNICAL MEMORANDUM TM 153-77
   Provides a nontechnical description of the system for senior management personnel

SECTION 1. GENERAL

1.1 Purpose

This volume of the QUICK Users Manual informs the CCTC user/analyst in the preparation of control cards, structure of execution (run) decks, preparation of computer job requests, and in the analyzation of the associated computer output, to include the recognition of error messages for the Weapon Allocation subsystem of QUICK. It complements information contained in the Program Maintenance Manuals of the QUICK System. The abstract of this document references other documents describing QUICK.

1.2 General Description

The Weapon Allocation subsystem uses the integrated data base as defined by all preceding modules and produces a plan using the weapon resources specified to maximize the expected target value destroyed. The subsystem consists of programs PREPALOC, ALOC, EVALALOC, and ALOCOUT, as shown in figure 1. Figure 2 shows the relationship of the Weapon Allocation subsystem to other QUICK subsystems in terms of procedural and information flow.

The programs and supporting subroutines of this subsystem are used to define information for use in later processes and allocate given weapons to targets to optimize expected value destroyed. Figure 3 shows the subsystem data flow schematic. The spill tape from program ALOCOUT is the input to program FOOTPRNT which initiates the Sortie Generation subsystem.

The first program, PREPALOC, precomputes much of the information required by later processors. It organizes the input data for efficient use by other components of the Weapon Allocation subsystem. In addition, it provides capabilities for planning factor modification and fixed weapon assignment specification.

The basic data manipulated by this program include the distance and attrition factors for the weapons, the geographic description of the bomber penetration and depenetration corridors, the weapon characteristic tables (e.g., warhead and payload tables), and the target characteristics.

The next program, ALOC, performs the allocation of weapons to targets. Using a generalized Lagrange multiplier method, an optimal allocation is generated subject to several forms of user-input allocation constraints. These constraints include specification of minimum and maximum desired damage levels, restriction of weapons to specified subsets of the target system, and specification of weapons allocated to specific targets by the user. Within these constraints, the program generates the allocation which maximizes the expected value destroyed in the target system. Program ALOC is also referred to as the Allocator.

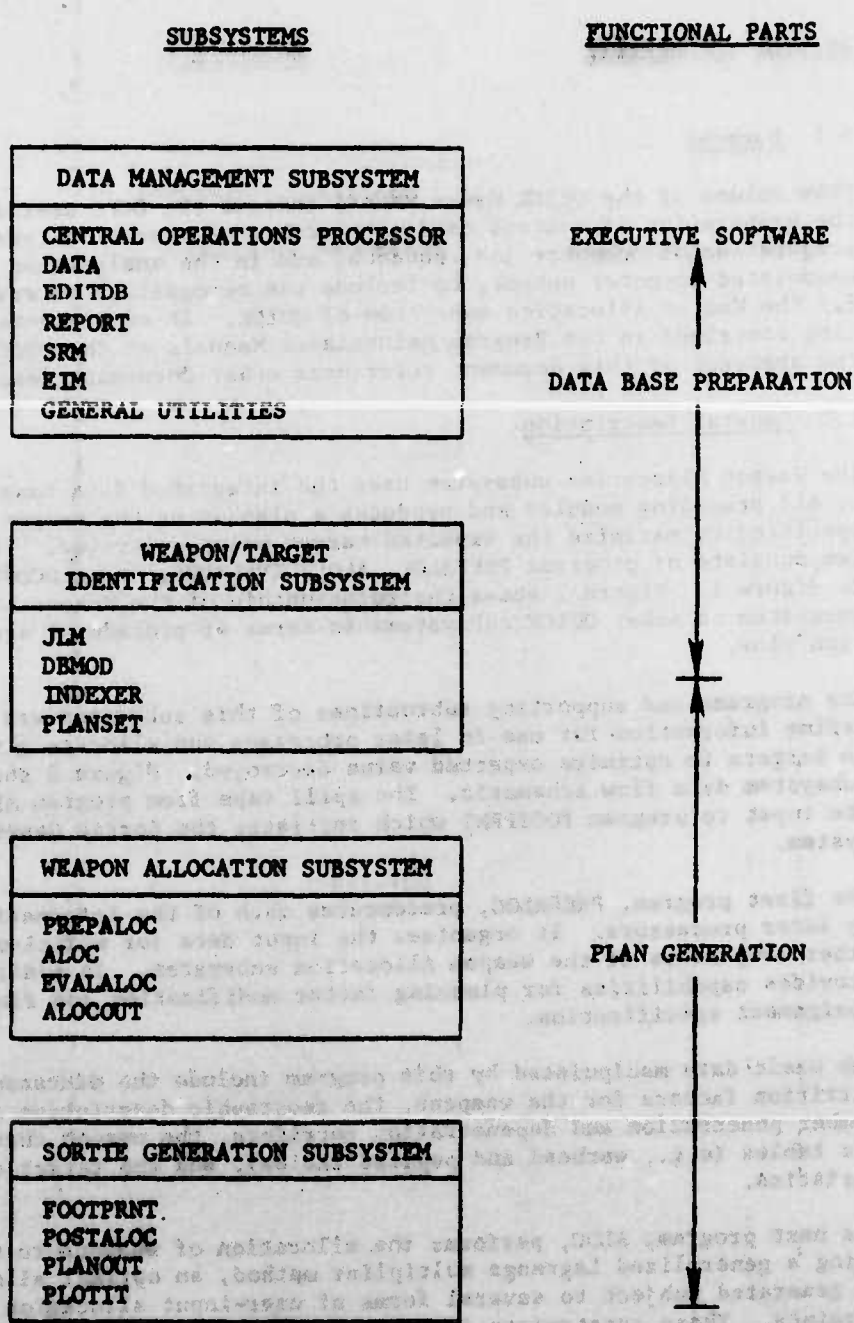

Figure 1. Major Subsystems of the QUICK System

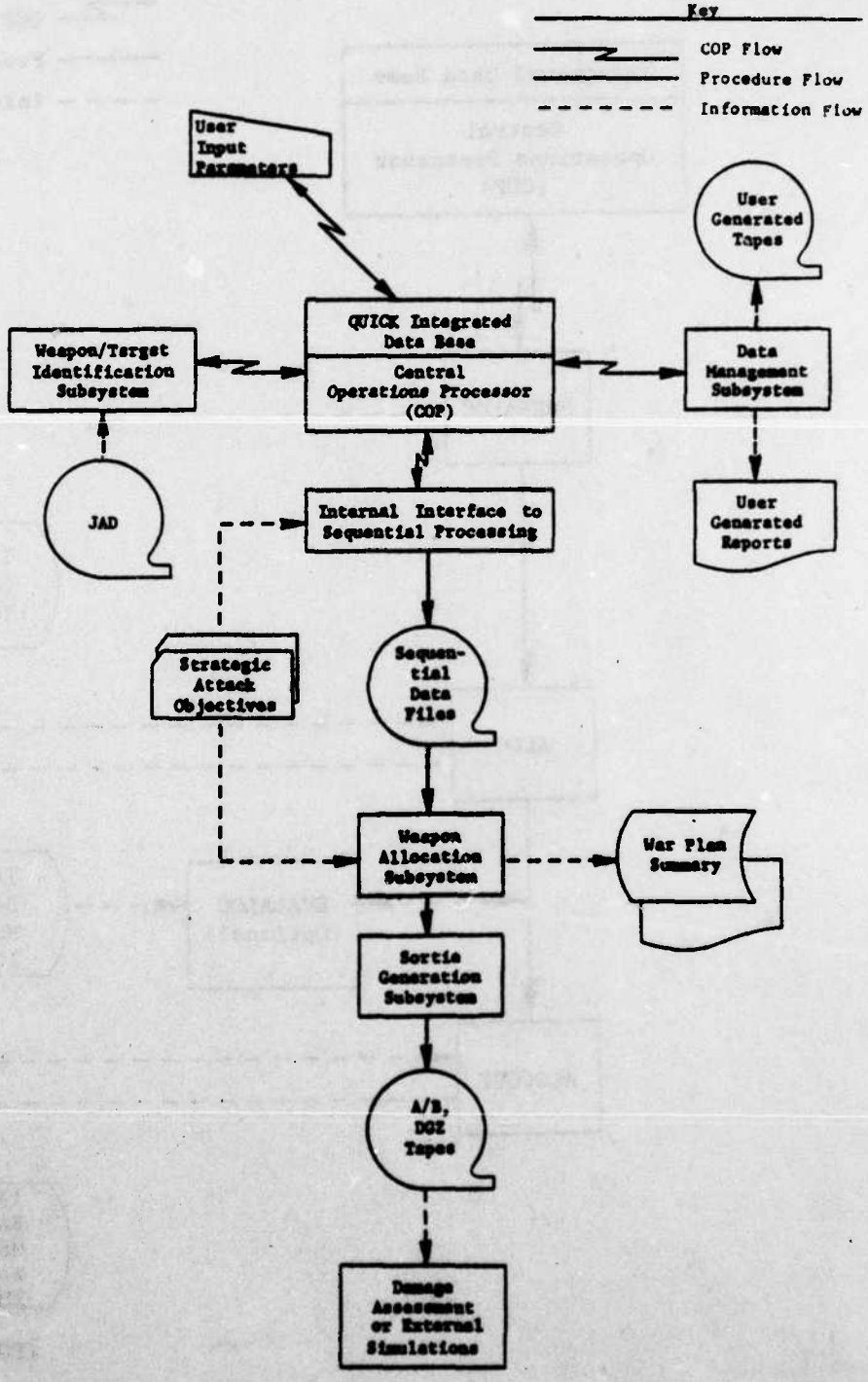

Figure 2. Procedure and Information Flow in QUICK/HIS 6000

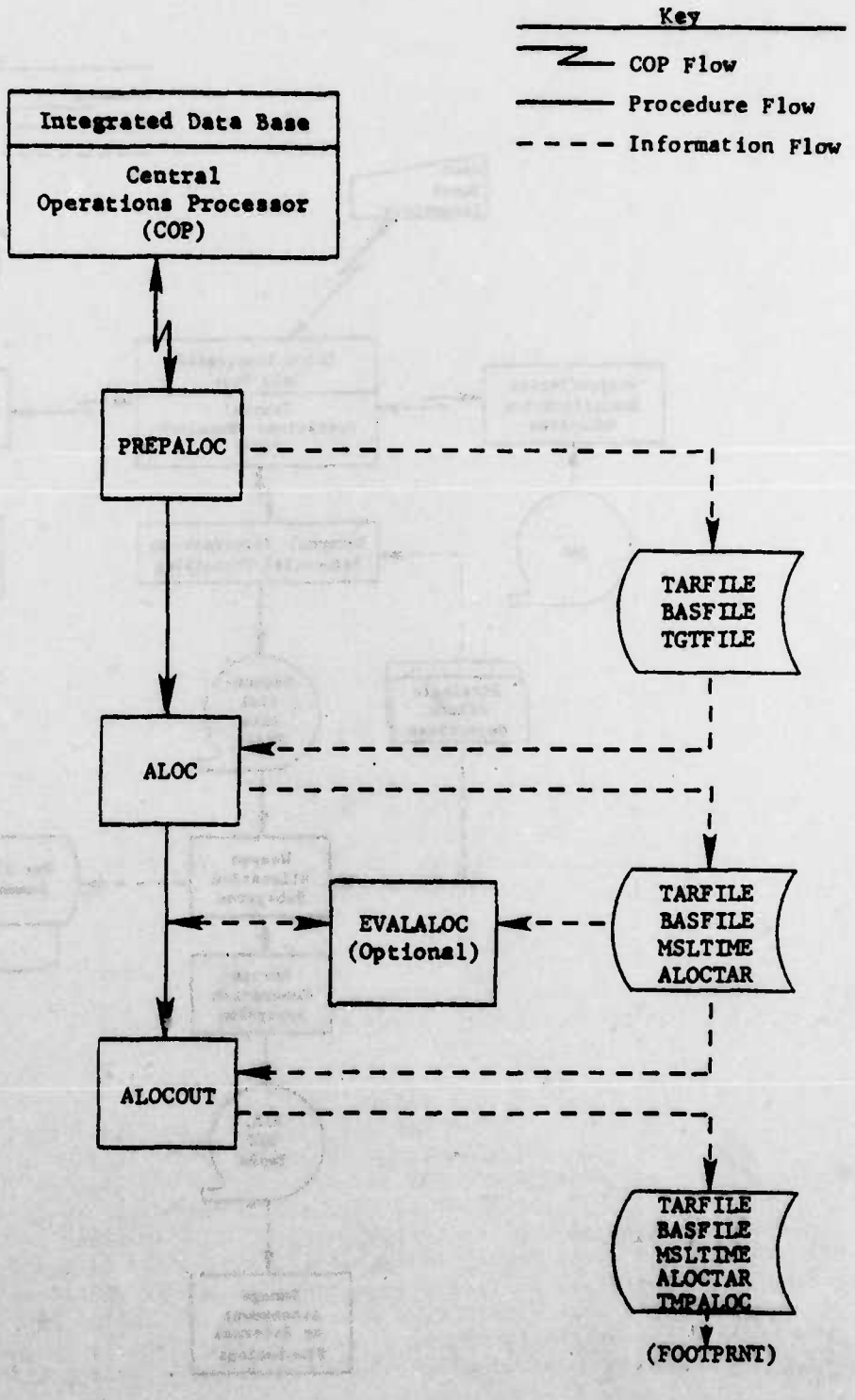

Figure 3. Weapon Allocation Subsystem - Data Flow

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A summary evaluation of the allocation, if desired, can be obtained using EVALALOC. EVALALOC reads the allocation from ALOCTAR, and extracts the information it needs concerning the weapon groups from BASFILE.

Program EVALALOC provides a summary of the allocation produced in program ALOC by calculating an expected-value estimate of its results. In addition, the program has the capability of evaluating the effect upon the results of variations in input values for weapon and target parameters. Program EVALALOC may be run either before program ALOCOUT or after program PLANOUT.

ALOCOUT optimizes the location of aim points for target complexes and collects all the strikes assigned to each weapon group by the Allocator so that detailed plans for each group can be formulated by FOOTPRNT and POSTALOC.

ALOCOUT reads the allocation to each target that it finds on ALOCTAR. Since the targets are still in the original order, it can read more detailed data on individual target elements from the BASFILE. In this way, it defines specific target elements and coordinates for the strikes specified by ALOC against multiple targets. Similarly, it reads in all the individual elements of a target complex (or complex target) and uses this information to select efficient desired ground zeros for each weapon allocated to the target complex. The resulting strikes with actual aim points (and offset aim points where appropriate) are then sorted. The final output of this sorting process is the allocation file (TMPALOC), which contains a list of all the strikes assigned to each weapon group.

SECTION 2. MODULE PREPALOC

2.1 Purpose

The purpose of this module is to perform preliminary calculations on the weapon and target data as stored within the integrated data base. The output data from PREPALOC will be in a form convenient for use by the remaining processors which perform plan generation. In addition, the user may select options to modify some of the data at this stage of processing.

PREPALOC (sometimes called the Internal Interface Module) is the last module within the QUICK system which is controlled by the COP. Processing for all remaining processors utilizes standard sequential data files which are controlled by QUICK's filehandler. Therefore, a major portion of PREPALOC action is the generation of sequential data files. These files obtain information from the integrated data base.

2.2 Concept of Use

Module PREPALOC has four major capabilities: generation of weapon and target data, modification of target values and damage constraints, preparation of data for the fixed weapon assignment capability of program ALOC, and the generation of filehandler files.

The data produced by the first capability can be divided into three categories: geographic, weapon, and target. Module PREPALOC uses these data to define the legs for each penetration corridor, the location of each refuel area (except for those determined automatically by program PLANOUT), and the bases available for recovery from each depenetration corridor. The weapon data characteristics such as speed, range, yield, CEP, and function are aggregated by weapon type. Data on payloads, warheads, and air-to-surface missiles (ASMs) are also calculated for use by later processors. The target data are the characteristics which define the target as a candidate for weapon allocation. The geographic location, vulnerability, value, damage constraints, value reduction with respect to time, local defense levels and other target characteristics are considered for each simple, complex, or multiple target. These data will determine the worth of weapon allocations in program ALOC. The only user input data required for this capability identify the type of strike (e.g., initiative or retaliatory).

The second major capability of this program is the modification of the target characteristics, VTO, MINKILL, and MAXKILL. VTO is the value of the target relative to the others. MINKILL is the minimum fraction of value that must be destroyed, and MAXKILL is the maximum desired fraction destroyed. Any of these parameters may be changed for any target. The change requests can change these parameters for a single target or for a set of targets. The set of targets for which a change is requested is identified by target class, type, and individual identifier (target designator code (DESIG)), or any combination of these. For complex

targets, the class, type, and designator code of each component will be checked to determine if a target parameter for the complex is to be changed.

An additional planning factor which can be modified in this program is weapon height of burst. In the absence of any user specifications, QUICK uses the height of burst for each weapon/target combination that produces the most damage. However, the user can specify use of air or ground bursts in preference to the optimal height. The user can request ground or air bursts on the basis of weapon type, target designator code, target type, target class, target country location, or target region.

The third major capability is the request for allocation of specific weapons to specific targets. (These requests are called "fixed assignments".) This fixing of weapons to targets enables the user to determine part of the weapon allocation while leaving the allocation program free to determine the remaining allocation. In addition, the time of arrival at target can be fixed for missile weapons. This information will be passed to program PLANOUT which will adjust the launch time accordingly. The specified fixed assignment of weapons remains in effect for the remainder of the plan generation process. Later programs will retain the assignments as best possible. (For example, it is possible to fix a set of weapons from a weapon group with multiple independently targetable re-entry vehicles (MIRV) in such a manner that there are no feasible footprints that cover that target set adequately. In that case, some of the fixed assignment requests must be ignored.)

The fourth major capability is the transition from the integrated data store method of data definition to that of sequential record storage where the physical location of each record is necessary for proper processing.

2.3 File Utilization

A diagram illustrating the file requirements for the execution of module PREPALOC is shown in figure 4.

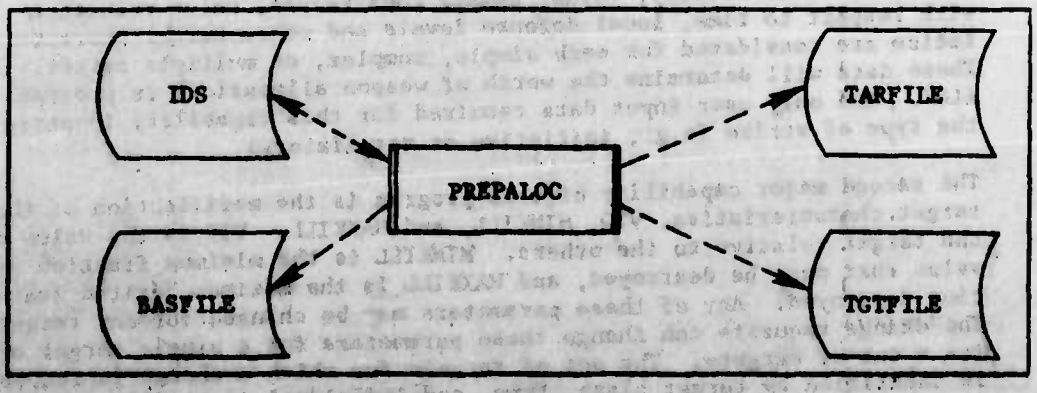


Figure 4. Module PREPALOC File Utilization

2.3.1 Input Files. The total integrated data base constitutes the inputs. All record types within the data base may be readily queried.

2.3.2 Output Files. The Target File (TGTFILE) contains information on all targets as modified by the planning factor modification options of module PREPALOC. Also included are some geographic data and fixed weapon assignment requests.

The Base File (BASFILE) contains information on weapon groups, complex and multiple targets, tankers, and geography data for accessible use by later programs.

The target parameters indexed on designator code are on the Target Designator File (TARFILE) for use in program PLANOUT.

2.3.3 Filehandler Buffer Utilization. The Filehandler buffer area is utilized in conjunction with the above files as indicated in table 1.

File Name	Buffer Number (LUN)
BASFILE	8
TGTFILE	2
TARFILE	19

Table 1. Module PREPALOC Filehandler Buffer Utilization

2.4 Input

2.4.1 General. Text English commands to this module permit the setting of new target values, MINKILL or MAXKILL as well as specifying weapon height of burst. Also certain gaming parameters are set which define the game to be executed. One final consideration is permitting the user to directly assign weapons to individual targets.

This module recognizes the verb PREPARE and adverbs SETTING, FIX, and ONPRINTS (raquest for optional prints). The general form of the command is:

PREPARE [SETTING [game-parameter {EQUAL / =} value]

[(attribute-1, attribute-2) {EQUAL / =} (value, value) [AND (value, value). . .]]]

[FIX (DESIG [, DESIG] , GROUP [, ARRIVE]) {EQUAL / =}

(desig [,desig] , value [,value])

[AND (desig [,desig] , value [, value]) . . .]]

[ONPRINTS]

2.4.2 The SETTING Adverb. Two main sets of data are considered under this clause. The first permits the definition of variables that will finalize the game scenerio being executed. The second allows the user to set attributes in various combinations of subsets whereby target value, MINKILL, MAXKILL or height-of-burst overrides previous inputs or calculations.

2.4.2.1 Gaming Parameters. The user has the capability to input values for parameters given in table 2. If inputs are absent, default values are used. Simply, values are entered as:

INITSTRK=1

For any given weapon group, weapons will be added for sortie generation constraint considerations. The number of weapons in each group will be

WEAPONS*(1.0+PEX+(EXN/VEHICLES))

where WEAPONS and VEHICLES are PLANSET determined; PEX=PEXBOMB, PEXMISS, or PEXMIRV; and EXN=EXNBOMB, EXNMISS, or EXNMIRV.

2.4.2.2 Target Modifications. The target modification portion of the setting clause allows the user to change target value, minimum or maximum required destruction fraction, and height of burst on any target or set of targets. In the general command sentence given above, generic word attribute-1 refers to the identification of the target set over which a specific change is to be effective. Generic word attribute-2 refers to the attribute that is to be changed. Therefore;

attribute-1 = DESIG (designator code), TYPE (type name), CLASS (target class name), CNTRYL (target country location), or IREG (target region)

and

attribute-2 = VALUE (target value), MINKILL (minimum value destroyed), MAXKILL (maximum value destroyed), or IDHOB (target height of burst specification), air or ground)

Table 2. Game Related Parameters

MNEMONIC	DEFAULT	RANGE	DESCRIPTION
INITSTRK	1	1 or 2	Strike type (first or second). In the first strike case, the launch timing is determined by the other two input parameters. In the second strike case, all alert weapons launch after their specified alert delay (ALRTDL), all nonalert weapons launch after their nonalert delay (NLRTDL), and the detailed coordinated missile timing parameters in program PLANOUT are ignored.
CORRMISL	0.0	0.0-1.0	Gross missile launch timing. Defined as the fraction of missile flight completed at time zero. A value of 0.0 specifies missile launch; a value of 1.0 specifies missile impact.
CORRBOMB	0.0	≥0.0	Bomber launch timing. The number of nautical miles prior to the corridor entry that each bomber reaches at time zero.
PEXBOMB*	0.0	≥0.0	The fraction of bomber weapons added for each weapon group for over allocation.
EXNBOMB*	3.0	0.0-1000.0	Vehicle 'loads' added to each bomber group. A vehicle 'load' is the ratio of the number of weapons (PLANSET determined) to the number of vehicles
PEXMISS**	0.0	≥0.0	Same as PEXBOMB for non-MIRV missiles
EXNMISS**	0.0	0.0-1000.0	Same as EXNBOMB for non-MIRV missiles
PEXMIRV**	0.1	≥0.0	Same as PEXBOMB for MIRV missiles
EXNMIRV**	2.0	0.0-1000.0	Same as EXNBOMB for MIRV missiles

* These parameters are modified for bomber groups with less than 15 bombers.

** These variables must be such that the total number of vehibles per group (including overallocation) does not exceed 1030 for bombers and 1130 for missiles.

Any combination of target subsetting is permissable but there is a ranking order in the final storage of input values. The order of priority is: DESIG, TYPE, CLASS, CNTRYL, IREG. That is, if a given target is referenced by more than one output target set, the cited order applies.

Consider:

(TYPE,VALUE) = (B52,10) (CNTRYL,VALUE) = (US,20) (CLASS,VALUE) = (MISSIL,10) (DESIG,VALUE) = (AB123,30)

In terms of the hierarchy, all targets located within the US will have a value of 20; all B52s and MISSILs will have a value of 10 (even if located within the US); and the individual target AB123 will have a value equal to 30.

If some targets within the given subset are components of a target complex, the planning factors for the complex would be changed to agree with the modified values for the components. If an attempt is made to modify the same planning factor for a complex target as a whole, and also on a component of that complex, the former change will be effected and the latter change will be ignored.

In the absence of a height-of-burst specification, the optimal height is used. When changing VALUE, the normalized VALUE should be entered.

In summary, then, this phrase of the SETTING clause is:

$$\underline{\text{PREPARE}}\ \underline{\text{SETTING}}\ \left(\begin{Bmatrix}\underline{\text{DESIG}}\\ \underline{\text{TYPE}}\\ \underline{\text{CLASS}}\\ \underline{\text{CNTRYL}}\\ \underline{\text{IREG}}\end{Bmatrix}, \begin{Bmatrix}\underline{\text{VALUE}}\\ \underline{\text{MINKILL}}\\ \underline{\text{MAXKILL}}\\ \underline{\text{IDHOB}}\end{Bmatrix}\right) = \underline{(\text{value}, \text{value})} \ldots .$$

All combinations are permitted except that CNTRYL and IREG may only be used in connection with IDHOB.

2.4.3 The FIX Adverb. The optional fixed assignment clause specifies the allocation of weapons to specific targets. A fixed assignment of weapons from a specific group to a specific target is maintained by program ALOC, which optimizes the assignment of the nonfixed weapons. In addition, the delivery time (minutes relative to H-hour) of non-MIRV missile weapons may be specified. Two direct commands are:

```
FIX (DESIG,GROUP) = (AB123,4)
    (DESIG,GROUP,ARRIVE) = (AD187,6,.5) AND (FA001,92,1)
```

The first command fixes a weapon from group 4 to target AB123, and downtime is dependent on the time of flight. The second command fixes weapons from groups 6 and 92 to targets AD187 and FA001 with downtimes of .5 and 1, respectively.

In many cases fixed assignments are made to sets of targets that have sequential DESIGs. In order to capture this often used option, it is permissible for the user to input a string of DESIGs for many targets thereby fixing one weapon group from the indicated weapon group on each target. This command is an expansion on the individual assignment command and is recognized by the appearance of the word DESIG entered twice and separated by a comma. For example:

```
FIX (DESIG,DESIG,GROUP,ARRIVE) = (AB127,AB227,5,1.0)
AND (AB228,AB230,6,1.0)
```

Group 5 will have weapons fixed assigned to all targets starting with DESIG AB127 and ending with DESIG AB227 (101 separate targets). The alpha-portions of these two DESIGs must be equal.

The following constraints apply:

- o No weapons from a bomber group may be fixed on a target which has been allocated more than 30 weapons.
- o No more than 30 weapons may be fixed on an undefended target (MISDEF=0).
- o The number of weapons in any group is the maximum number of fixed assignments which may be made from that group.

2.5 Output

2.5.1 Standard Reports. Standard prints consist of a summary of user selected parameters (figure 5); a print of each target which contains all planning factor changes (figure 6) and summaries of fixed assignments (figure 7) and target related summaries (figure 8).

2.5.2 Optional Reports. If the user included the optional ONPRINTS within the input command, geographic related prints will be produced. These are as given in figures 9 through 18.

2.5.3 Error Messages. All possible error messages produced for PREPALOC are explained in figure 19.

USER INPUT PLANNING PARAMETERS

①		②		③
INITST	=	1	BY	INPUT
CORMSL	=	0.5	BY	INPUT
CORBOMB	=	0.0	BY	DEFAUL
PEXBOM	=	0.0	BY	DEFAUL
EXNBOM	=	3.0	BY	DEFAUL
PEXMIR	=	.05	BY	INPUT
EXNMIR	=	2.0	BY	DEFAUL
PEXMIS	=	0.0	BY	DEFAUL
EXNMIS	=	0.0	BY	DEFAUL

HEADING	MEANING
①	Parameter name (first six characters)
②	Parameter value
③	Mode (DEFAULT or INPUT)

Figure 5. Print of User-Input Parameters

①	②	③	④	⑤	⑥	⑦
TGTNUM	TGTNAME	INDEXNO	DESIG	IHCLASS	TYPE	VALUE
5	MOSCOW	2131	AB123UR1	U/I	RCITY	21.4

⑧	⑨	⑩	①
MINKILL	MAXKILL	VULN	TGTNUM
0.50	0.75	06P0	5

⑪	⑫	⑬
GROUP	ARRIVE	SALVO
94	1.0	5
13	1.0	1

HEADING	MEANING
①	Target number
②	Target name
③	Index number
④	Designator code/country location code/flag code
⑤	Target class name
⑥	Target type name
⑦	Target value
⑧	Target minimum required destruction fraction
⑨	Target maximum desired destruction fraction
⑩	Target vulnerability; for a complex, VULN is the hardest vulnerability in the complex
⑪	If target has fixed assignments, weapon group numbers are listed
⑫	Time of arrival for missile weapons (in minutes from H-hour)
⑬	Salvo number of fixed assignments

Figure 6. Planning Factor Changes

① ②

OUT OF 137 REQUESTS FOR FIXED ASSIGNMENT, 137 WERE FULFILLED.

③

EVERY TARGET IDENTIFIER REQUESTED WAS ENCOUNTERED ON THE TARGET FILE

BREAKDOWN OF FIXED ASSIGNMENTS BY GROUP

④ GROUP	⑤ FIXED WEAPONS	⑥ TOTAL WEAPONS
1	100	200
5	20	300
93	17	150

HEADING	MEANING
①	Number of weapons requested for fixed assignment
②	Number of weapons actually assigned
③	Message verifying correct input of target identifiers
④	Group number
⑤	Number of weapons fixed from group
⑥	Total number of weapons in group

Figure 7. Summary of Fixed Assignment Information

(1)

684 TARGETS PROCESSED

(2) I	(3) CLASS NAME	(4) FRACTION OF TOTAL VALUE IN CLASS
1	MISSIL	0.2500
2	BOMBER	0.3500
3	TANKER	0.1000
.	.	.
.	.	.
.	.	.
15	NOT USED	0.0000

HEADING	MEANING
(1)	Number of targets as seen by ALOC
(2)	Line count
(3)	Class name (CLASS)
(4)	Fraction of total target value in class

Figure 8. Target Data Summary Print

PENETRATION CORRIDOR DATA

① CORNUM	② LAT	③ LONG	④ KORSTY	⑤ HILOAT	⑥ DEFRAN	⑦ ATTRSU	⑧ ATTRCO
1	29.0	217.1	5.0	3.0	250.0	.0001	.0005
2	13.5	105.2	2.0	3.0	250.0	.0002	.0010

⑨ DOGLEG	⑩ LAT	⑪ LONG	⑫ ATTRE
1	62.	172.	0.
4	60.	230.	.0001

HEADING	MEANING
①	Penetration corridor number
②	Latitude of corridor axis orientation point
③	Longitude of corridor axis orientation point
④	Exponent for definition of curvilinear coordinates (attribute KORSTY in data base)
⑤	Ratio of high altitude attrition to low altitude attrition
⑥	Characteristic distance defining rate of change from suppressed attrition to normal attrition
⑦	Attrition probability per nautical mile (suppressed)
⑧	Attrition probability per nautical mile (normal)
⑨	Dogleg associated with Corridor. Direction is outward from the targets. Order is in increasing attribute DOGLEG sort (does not have to be sequential).
⑩	Latitude of dogleg
⑪	Longitude of dogleg
⑫	Attrition in dogleg

Figure 9. Penetration Corridor Data Print

① CORNUM	② DISTBC	③ ATTRBC
1*	0	0
2*	0	0
3	5.0722E 02**	0
4	0	0
5	0	0

HEADING	MEANING
①	Penetration corridor number
②	Length of corridor (nautical miles) (from entry to origin)
③	Attrition in corridor

* The values for corridors 1 and 2 are irrelevant, since these are the "dummy" corridors for tactical aircraft and aircraft with a value greater than zero for the attribute PKNAV.

** The E format is mathematical base 10 notation. The number w.mmEyy is equivalent to w.mm x 10^{yy}. For example, 5.0722E02 represents 507.22 (i.e., 5.0722 x 100).

Figure 10. Penetration Corridor Data Print--
Corridor Distance and Attrition

① CORNUM	② NPRCRDEF	③ DISTDEF	④ PRATTR
1	0	0 0 0	0 0 0
2	0	0 0	0 0

HEADING	MEANING
①	Penetration corridor number
②	Number of precorridor legs with defenses
③	Length of defended corridor segments
④	Probability of attrition in each defended corridor segment

Figure 11. Penetration Corridor Data Print--Precorridor Defenses

DEPENETRATION CORRIDOR DATA

① CORNUM	② RECOVERY BASES		
1	AB102	AB196	AC123

③ DOGLEG	④ LAT	⑤ LONG
1	43.0	222.0

HEADING	MEANING
①	Depenetration corridor number
②	DESIG(s) of recovery bases permitted for this corridor (maximum of 4)
③	Dogleg for this corridor. Direction is away from the target
④	Latitude of dogleg
⑤	Longitude of dogleg

Figure 12. Depenetration Corridor Data

① CORNUM	② DISTEG	③ DISTEF
1	0	0
2	0	0
3	0	0
4	0	0

HEADING	MEANING
①	Depenetration corridor number
②	Length of depenetration corridor (nautical miles from entry to end)
③	Distance from depenetration corridor entry point to recovery point (nautical miles)

Figure 13. Depenetration Corridor Distance

DEPENETRATION CORRIDOR - RECOVERY BASE LINKING

① DEPENETR CORRIDOR	② BASE ORDER	③ BASE LATITUDE	④ BASE LONGITUDE	⑤ BASE NAME	⑥ BASE CAPACITY	⑦ BASE DISTANCE
1	1	41.0	210.0	AB1	10	100.0
	2	41.2	210.0	AB5	20	200.0
	3	41.3	215.1	AB10	30	300.0
	4	0	0	0	0	0
2	1	36.2	215.3	AB2	60	0.0
	2	37.5	215.4	AB3	50	50.0

HEADING	MEANING
①	Depenetration corridor number
②	Order of base according to increasing distance from end of depenetration corridor
③	Base latitude
④	Base longitude
⑤	Base name
⑥	Base capacity (number of aircraft)
⑦	Base distance from end of depenetration corridor (nautical miles)

Figure 14. Recovery Base Data Print--Depenetration Corridor - Recovery Base Linking

REFUEL POINTS

① POINT NO.	② LATITUDE	③ LONGITUDE
1	21.2	212.2
2	31.3	212.3

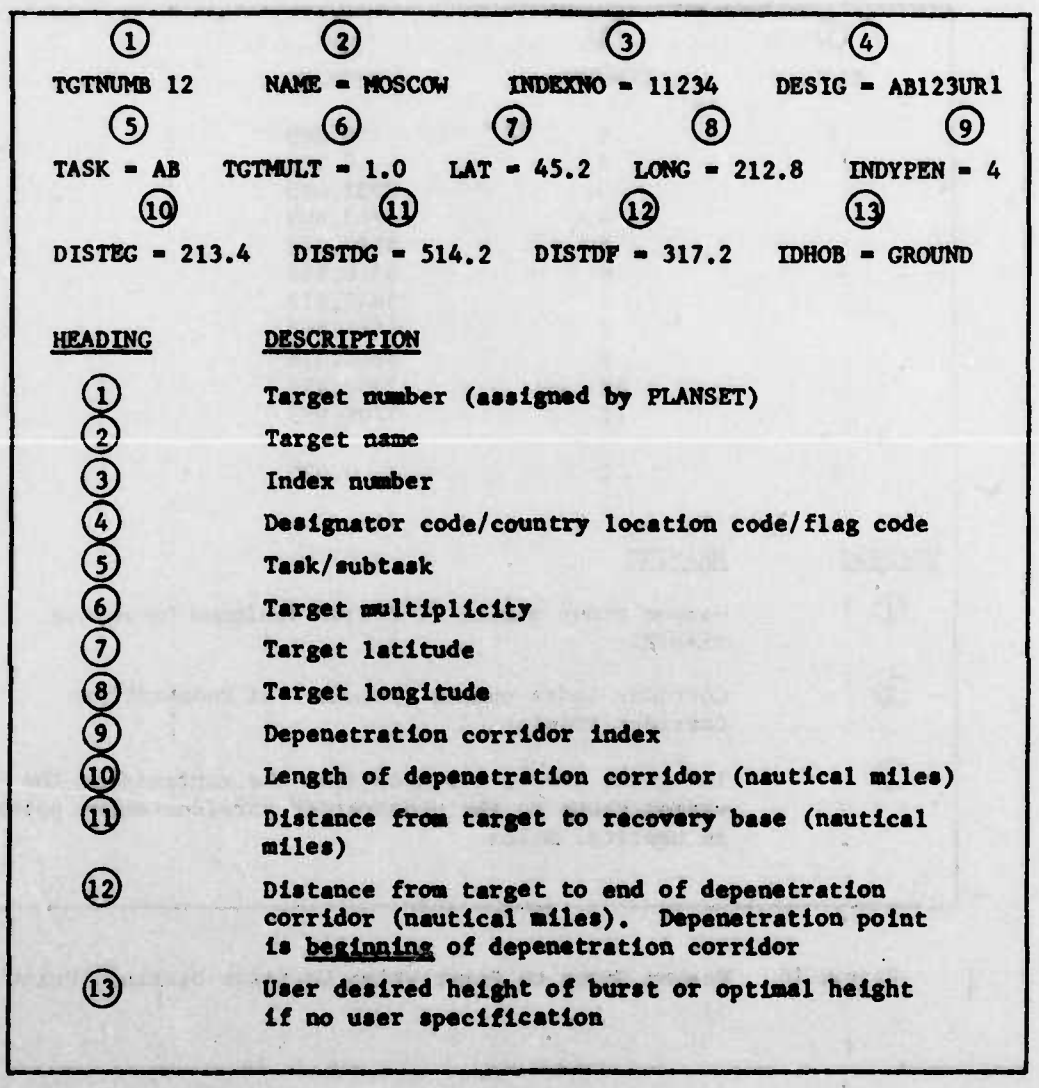
HEADING	MEANING
①	Refuel area number (attribute IPOINT in data base)
②	Latitude of refuel point
③	Longitude of refuel point

Figure 15. Refuel Point Data Print

① GROUP	② CORNUM	③ DISTAC
1	1	0.000
	2	0.000
	3	2931.083
	4	4763.809
	5	5187.943
	6	3516.968
	7	3843.813
	8	4461.455
	9	4860.476
	10	3346.476
	11	3706.963
2	1	0.000

HEADING	MEANING
①	Weapon group number (1-250)as assigned by module PLANSET
②	Corridor index number (column 1 of Penetration Corridor Prints)
③	The great circle distance from the centroid of the weapon group to the penetration corridor entry point in nautical miles

Figure 16. Weapon Group to Penetration Corridor Distance Print



HEADING	DESCRIPTION
①	Target number (assigned by PLANSET)
②	Target name
③	Index number
④	Designator code/country location code/flag code
⑤	Task/subtask
⑥	Target multiplicity
⑦	Target latitude
⑧	Target longitude
⑨	Depenetration corridor index
⑩	Length of depenetration corridor (nautical miles)
⑪	Distance from target to recovery base (nautical miles)
⑫	Distance from target to end of depenetration corridor (nautical miles). Depenetration point is beginning of depenetration corridor
⑬	User desired height of burst or optimal height if no user specification

Figure 17. Target Information Print--Part A

① ICORR	② DISTCD	③ ATTRCD
1	0	.0001
2	0	.0002
3	201.4	.0005

HEADING	MEANING
①	Penetration corridor number
②	Distance corridor origin to target (nautical miles)
③	Attrition parameter, corridor origin to target (this value is used as the exponent in the attrition probability calculation).

Figure 18. Target Information Print--Part B

1	MORE THAN (I4) TARGET CLASS HEADERS. EXCESS IGNORED. PREPALOC has found more than 15 target classes in the data base. Consult a maintenance programmer.
2	MORE THAN (I5) TARGET TYPES PREPALOC has found more than 270 target types in the data base. Consult a maintenance programmer.
3	MORE THAN (I5) WEAPON TYPES IN DATA BASE PREPALOC has found more than 100 weapon types in the data base. Consult a maintenance programmer.
4	UNKNOWN ADVERB NO. (I4) ENCOUNTERED. ADVERB IGNORED Check the adverbs in the input command. The only adverbs allowed are SETTING, FIX and ONPRINTS.
5	NO. OF PENETRATION CORRIDORS EXCEEDS MAX PREPALOC has found more than 30 penetration corridors in the data base.
6	MORE THAN (I5) WARHEAD TYPES IN DATA BASE PREPALOC has found more than 50 warhead types in the data base.
7	MORE THAN (I5) ASM TYPES IN DATA BASE PREPALOC has found more than 20 ASM types in data base.
8	MORE THAN (I5) PAYLOAD TYPES IN DATA BASE PREPALOC has found more than 40 payload types in the data base.
9	MORE THAN (I5) REGIONS IN DATA BASE PREPALOC has found more than 20 regions in the data base.
10	MORE THAN (I5) DEPENETRATION CORR. IN DATA BASE PREPALOC has found more than 50 depenetration corridors in the data base.

Figure 19. PREPALOC Error Messages (Part 1 of 5)

11 MORE THAN (I5) BASES IN GROUP (I5)

PREPALOC has found more than 150 bases in the indicated group. Consult a maintenance programmer.

12 DEPROUT ENCOUNTERED NONEXISTENT DESIG FOR RECOVERY BASE (A6) DEPENETRATION CORR: (I5)

PREPALOC has encountered a nonexistent DESIG while processing depenetration corridors. Consult a maintenance programmer.

13 HAPPEN ARRAY OVERFLOW IN DEPROUT

Arrays for storing the latitude and longitude of each depenetration corridor dogleg have been filled. Consult a maintenance programmer.

14 REFUEL ARRAY OVERFLOW IN DEPROUT

PREPALOC has found more than 20 refuel points in the data base. Consult a maintenance programmer.

15 FACTORCG ENCOUNTERED UNKNOWN ALPHANUMERIC INPUT ATTRIBUTE (I4) CHANGE REQUEST IGNORED. (LAST CHANGE PROCESSED: (O12),(O12))

Check input for proper syntax.

16 LAST CHANGE REQUEST OUT OF RANGE. CHANGE REQUEST FOR FACTOR NO. (I3) CHANGED TO (F5.1)

PREPALOC received a change request that was either negative or greater than 1 (for MAXKILL or MINKILL). The change request is adjusted to 0 or 1 respectively.

17 FACTORCG ENCOUNTERED UNKNOWN NUMERIC INPUT ATTRIBUTE (I4) CHANGE REQUEST IGNORED. (LAST CHANGE PROCESSED: (O12),(O12))

Check input for proper syntax.

18 FACTORCG ENCOUNTERED UNKNOWN INSTRUCTION CODE (I5) ALL FURTHER REQUESTS IGNORED. (LAST CHANGE PROCESSED: (O12),(O12))

Check input for proper syntax.

19 FACTORCG RECEIVED CHANGE REQUEST FOR NONEXISTENT DESIG (A6) CHANGE REQUEST IGNORED.

PREPALOC has received a nonexistent DESIG in a change request. If the indicated DESIG should exist, consult a maintenance programmer.

Figure 19. (Part 2 of 5)

20 FACTORCG RECEIVED CHANGE REQUEST FOR NONEXISTENT CLASS (A6) CHANGE REQUEST IGNORED

Check the spelling of the indicated CLASS.

21 FACTORCG RECEIVED CHANGE REQUEST TO CHANGE FACTOR NO. (I4) WITH CRITERION CNTRYL. REQUEST IGNORED

PREPALOC received a request to change a factor other than height of burst for attribute CNTRYL.

22 FACTORCG RECEIVED CHANGE REQUEST TO CHANGE FACTOR NO. (I4) WITH CRITERION IREG. REQUEST IGNORED

PREPALOC received a request to change a factor other than height of burst for attribute IREG.

23 FACTORCG RECEIVED CHANGE REQUEST WITH NONEXISTENT IREG (F8.3) CHANGE REQUEST IGNORED

PREPALOC could not find the indicated region in the data base. If the indicated IREG is correct, consult a maintenance programmer.

24 FACTORCG RECEIVED CHANGE REQUEST FOR NONEXISTENT TYPE (A6) CHANGE REQUEST IGNORED

Check the spelling of the indicated type.

25 FIXWEP ENCOUNTERED UNKNOWN ALPHANUMERIC ATTRIBUTE NO. (I5) ALL FURTHER FIX ASSIGNMENTS IGNORED. (LAST FIX ASSG. PROCESSED: (A5),(I5))

Check the syntax of the FIX clause.

26 FIXWEP ENCOUNTERED UNKNOWN INSTRUCTION CODE (I5) ALL FURTHER FIX ASSIGNMENTS IGNORED. (LAST FIX ASSG. PROCESSED: (A5),(I5))

Check the syntax of the FIX clause.

27 FIXWEP ENCOUNTERED UNKNOWN NUMERIC ATTRIBUTE NO. (I5) ALL FURTHER FIX ASSIGNMENTS IGNORED. (LAST FIX ASSG. PROCESSED: (A5),(I5))

Check the syntax of the FIX clause.

Figure 19. (Part 3 of 5)

28 FIXWEP RECEIVED (A6) (A6) FOR BEGINNING AND END OF STRING OF DESIGS. ALPHA PARTS UNEQUAL. REQUEST IGNORED.

If the option which allows a string of DESIGs to be specified is used, the alpha-portions of the two DESIGs entered must be equal.

29 FIXWEP RECEIVED (A6) (A6) FOR BEGINNING AND END OF STRING OF DESIGS. END DESIG LESS THAN BEGINNING. REQUEST IGNORED.

If the option which allows a string of DESIGs to be specified is used, the numeric-portion of the second DESIG entered must be greater than or equal to that of the first DESIG entered.

30 FIXWEP RECEIVED NONEXISTENT DESIG (A6) FIX ASSIGNMENT IGNORED

There is no target with the indicated DESIG in the data base. If there should be, consult a maintenance programmer.

31 FIXWEP RECEIVED NO. TO NONEXISTENT GROUP (I5) FIX ASSIGNMENT IGNORED

No weapon group with the indicated group number exists in the data base.

32 FIXWEP RECEIVED FIX ASSIGNMENT FOR BOMBER GROUP (I5) ON TARGET ALLOCATED MORE THAN 30 WEAPONS. TARGET: (A6) REQUEST IGNORED

No weapons from a bomber group may be fixed on a target which has been allocated more than 30 weapons.

33 FIXWEP RECEIVED FIX ASSIGNMENT ON UNDEFENDED TARGET (A6) WITH MORE THAN 30 WEAPONS ALLOCATED. REQUEST IGNORED

No more than 30 weapons may be fixed on an undefended target (attribute MISDEF equal zero).

34 FIXWEP RECEIVED FIX ASSIGNMENT FOR TARGET (A6) FROM GROUP NO. (I4) WHICH HAS ALL ITS WEAPONS FIXED. REQUEST IGNORED

All weapons from the indicated group have been fixed.

35 NO. OF PENETRATION CORR. EXCEEDED MAX IN PENROUT

PREPALOC has found more than 30 penetration corridors. Consult a maintenance programmer.

Figure 19. (Part 4 of 5)

36 HAPPEN ARRAY OVERFLOW IN PENROUT

Arrays for storing the latitude and longitude of each penetration corridor have been filled. Consult a maintenance programmer.

37 LAUNCH TIME NEGATIVE FOR GROUP = (I3) IMPACT TIME = (F10.5) DESIG = (A6)

In fix assigning indicated group a negative launch time was found. The fixed assignment will be honored for the first salvo.

38 NO. OF COUNTRY LOCATION CODES EXCEEDS MAX

PREPALOC found more than 150 country location codes in the data base. Consult a maintenance programmer.

39 IGOT LT TGTMULT,MYSAL: (I6) NSHIFT (I6) IGOT (I6) DESIG = (A6) GROUP = (I3)

The number of salvoed weapons in the salvo indicated by MYSAL is less than the number of fix assignments for this salvo. The next salvo number is attempted.

Figure 19. (Part 5 of 5)

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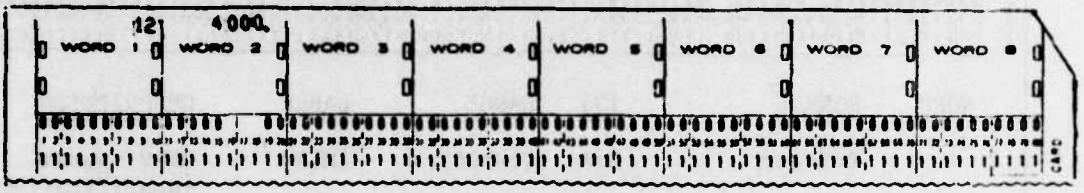
Table 11. Default Print Requests

OPTION	FIRST PASS	FIRST TARGET	LAST PASS	LAST TARGET	FREQUENCY
1	1	1	9999	9999	1
2	1	1	9999	9999	1
4	1	1	9999	9999	50
16	1	1	9999	9999	1

Table 12. Print Request Input Parameters (Part 1 of 2)

NAME	RANGE	DEFAULT	DESCRIPTION
NOPRINT	1,2,4,16	None	Used to remove a default print request. Its value is the print option number to be removed.
PRINT	1-28, 101-110	None	Used to request a print. Its value is the option number of the print requested. If its value exceeds 100, it is interpreted as requesting a filehandler dump on the unit equal to the code minus 100 (i.e.; a value of 104 requests a filehandler dump of the file on unit 4). The format of this print is described under program FILEHNR.
FIRSTPAS	1-9999	1	Its value is the first pass on which the print is active. It refers to the nearest preceding 'PRINT' request on the same card.
FIRSTAR	1-9999	1	Its value is the first target in each pass on which the print is active. It refers to the nearest preceding 'PRINT' request on the same card.
LASTPASS	1-9999	9999	Its value is the last pass on which the print is active. It refers to the nearest preceding 'PRINT' request on the same card.
LASTAR	1-9999	9999	Its value is the last target in each pass on which print is active. It refers to the nearest preceding 'PRINT' request on the same card.
TGTFREQ	1-9999	1	Its value is the number of targets processed between successive activations of the print. For example, if TGTFREQ=10, the print is active on every tenth target

3.4.2.3 MINRANGE Function--Specification of Minimum Allowed Weapon Range. These cards allow the specification of a minimum range for a weapon group. The group will be assigned to targets which are further than the minimum range from the group centroid. If conflicting requests are input (i.e., more than one card from the same group), the last one read will take precedence. If no minimum range is input, it is assumed to be zero. Figure 31 shows a minimum range card. This set of cards is terminated by a card with a nonpositive integer in the first field.



WORD	FORMAT	(J)	RANGE	LABEL	DESCRIPTION
1	Integer	N/A	(1-200)	G	Group number
2	Floating Point	N/A	(Standard)	RANGEMIN	Minimum range in nautical miles

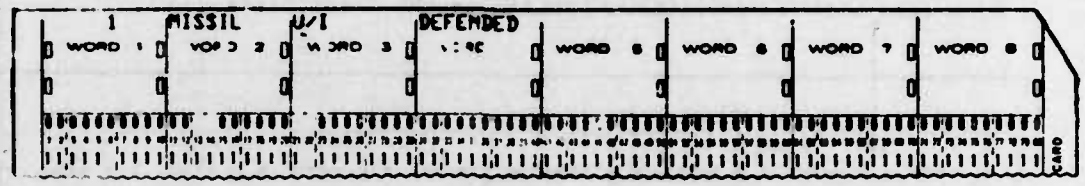
Figure 31. Minimum Range Card

3.4.2.4 MIRVREST Function--Restriction of MIRV Weapons. This function restricts the use of MIRV weapons to specific target classes. The user input for this option consists of a series of cards which list permitted target classes for each restricted MIRV system. Figure 32 displays the format of this card. The data set is terminated by a zero or negative IMIRV number.

The permitted target class name fields are scanned on each card. Only the nonblank fields are processed. The contents of these fields may be the names of the QUICK target classes (e.g.; MISSIL, U/I) or COMPLE or COMPLD. (The target class names COMPLD and COMPLE refer to complex targets with and without terminal bomber defenses, respectively.) In addition, two other target classes may be put on the permitted list. The word DEFENDED permits targets with terminal ballistic missile defenses; the word MULTIPLE permits multiple targets.

The cards do not need to be in any particular order, nor is there any

required order for the target classes. The same IMIRV number may appear more than once. If so, the permitted classes on the second and succeeding cards are added to the classes permitted on previous cards. The maximum number of permitted classes, not including DEFENDED and MULTIPLE, is 16. There is no limit on the number of restriction cards, either total or per IMIRV number.

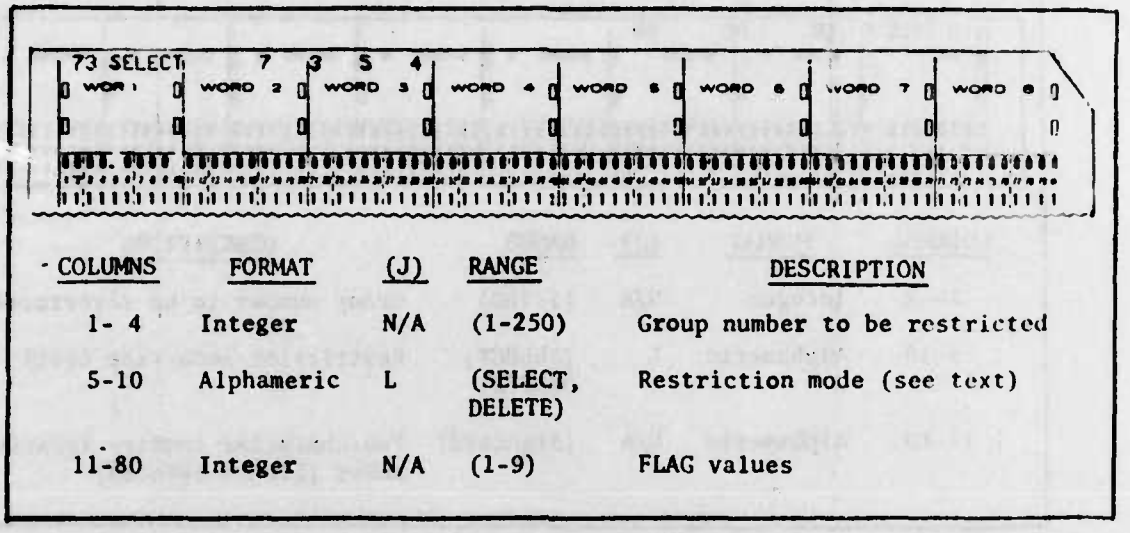


WORD	FORMAT	(J)	RANGE	LABEL	DESCRIPTION
1	Integer	N/A	(1-100)	IMIRV	MIRV system identification number
2-8	A8,2X	L	Target class names plus COMPLE, COMPLD, DEFENDED, MULTIPLE	N/A	Alphameric names of permitted target classes

Figure 32. MIRV System Restriction Card Format

If this run type option is used and there is no restriction card for a certain system, that system will be unrestricted. Note that the data fields are the permitted classes. Thus, if a card contains an IMIRV number and is blank thereafter, the system cannot be allocated unless there are other cards with that number that do contain permitted classes.

3.4.2.5 FLAGREST Function--Restriction of Weapons Using FLAG Attribute. This function permits user restriction of weapon allocations by the value of the target attribute FLAG. The user input consists of a series of FLAG restriction cards. The format of these cards is displayed in figure 33.



COLUMNS	FORMAT	(J)	RANGE	DESCRIPTION
1- 4	Integer	N/A	(1-250)	Group number to be restricted
5-10	Alphameric	L	(SELECT, DELETE)	Restriction mode (see text)
11-80	Integer	N/A	(1-9)	FLAG values

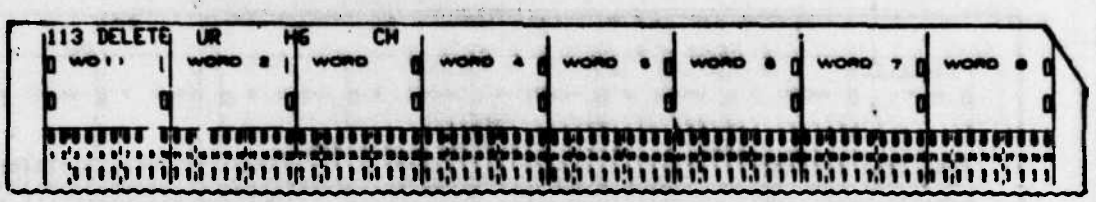
Figure 33. FLAG Restriction Card Format

The weapons are restricted by group. A FLAG restriction may be either SELECT or DELETE. If SELECT is chosen, only targets whose value of FLAG matches values on the card are eligible for weapon allocation. If DELETE is chosen, targets of all values of FLAG are eligible for weapon allocation except those which match values on the restriction card. The acceptable values of FLAG range from 1 to 9. The values may be placed on the card in any order. Blanks may appear between the values. For example, the card displayed in figure 33 allows weapons from group 73 to be allocated only to those targets with a FLAG code of 3, 4, 5, and 7.

The set of FLAG restriction cards is terminated by a card with the word END punched in the first three columns.

3.4.2.6 LOCREST Function--Restriction of Weapons Using CNTRYLOC Attribute. This function is similar to the FLAGREST function except that weapons are restricted by the value of target country location codes CNTRYLOC. The weapons are restricted by group using the SELECT or DELETE feature as in the FLAGREST option. Figure 34 displays the format of the country location code restriction code. The set of these cards is terminated by a card with the word END punched in columns 1-3.

The card displayed in figure 34 allows weapons from group 113 to attack a target only if the target country location code is not UR, HG, or CH. (Blanks are ignored in columns 11-80.)



COLUMNS	FORMAT	(J)	RANGE	DESCRIPTION
1- 4	Integer	N/A	(1-200)	Group number to be restricted
5-10	Alphameric	L	(SELECT, DELETE)	Restriction mode (see text)
11-80	Alphameric	N/A	(Standard)	Two-character country locetion codes (blanks ignored)

Figure 34. Country Location Code Restriction Cards

3.4.2.7 READMUL Function--Initial Lagrange Multiplier Input. This function allows the user to input the values of the local Lagrange multipliers before starting the weapon allocation.

Unless otherwise specified, ell local multipliers are initielly set to 1.0. These velues may be set by the user on date cards. The first word specifies either ALL, REGION, CLASS, TYPE, GROUP, OTHER, or END LAM. The integer in the second word represents the index of the weapon attribtue to be changed (e.g.; 1 for first group; 2 for second group), and the floating point number in the third word represents the new value of the particular local multiplier. The lest card in the user-input parameter cards for this option must be an END LAM card. Figures 35 end 36 describe the user-input parameter cards. In this example, ell items of CLASS 1 will have their lambdas multiplied by 0.5; additionally, TYPE 1 will have its lambda multiplied by 0.5. Thus, the weapons of CLASS1, will have an initial lambda of .25.

3.4.2.8 PRMUL Function--Final Lagrange Multiplier Output. There are no user-input parameters for this function. Only the function selection card is required.

4. FIXED ASSIGNMENT REQUEST NOT HONORED FOR GROUP (1) ON TARGET DESIG = (2) - INDEXNO = (3) - TARGET NO. = (4)
TARGET NO. = (4)
PROBLEM IS (5)
The user has requested a fixed assignment of a weapon from group (1) to a target with designator code (2), index number (3), and target number (4). The request cannot be honored and the weapon is not allocated at all (to any target). The reason for not honoring the request is given in (5). The reasons are as follows:

- CNTRYL -- Restriction by country code (LOCREST option)
- FLAG -- Restriction by flag code (FLAGREST option)
- MINRAN -- Restriction by minimum range (MINRANGE option)
- MIRV -- Restriction of MIRV weapons (MIRVREST option)
- NAVAL -- Restriction of weapons with PKNAV = 0 to targets to class NAVAL and vice versa
- PENETR -- Inadequate capability to penetrate to the target
- RANGE -- Inadequate range to reach the target (possibly RANGEMOD option)
- VALUE = 0 -- The target has zero value at the weapon time of arrival. (Data base entry or possibly VALUEMOD option of program PREPALOC.)

5. LOOP = (1)
In this message (1) is the total number of targets encountered so far on which more than 100 weapon addition or deletion operations (IOP) were required before subrotuine STALL terminated the allocation process. Once this condition occurs, this message is printed as every succeeding target is processed. On each target with more than 100 weapon addition or deletion operations, the value of (1) is incremented by one. This message is for information only; no user action is required.

6. MINKILL NOT ACHIEVED
The required minimum probability of target destruction was not achieved on the preceding target. The program continues after achieving the maximum possible damage within weapon number and cost limitations. This message is for information only; no user action is required.

7. TARGET (1) MINKILL REQUIRES TOO MANY WEAPONS
On target with target number (1), a target with terminal ballistic missile defenses, the required minimum target destriction probability cannot be achieved after an allocation of 40% of the total missile force that can reach this target. The program continues using the allocation of 40% of each missile group that can be alloceted to this target. This message is for information only; no user action is required.

Figure 76. (Part 2 of 4)

8. EXCESSIVE GROUP ATTRIBUTES

The sum of the number of groups, the number of command and control regions, the number of weapon classes, the number of weapon types and the number of alert status exceeds 380. The program stops without allocating weapons. The plan must be redesigned to decrease this sum.

9. TARGET (1) HAS MORE THAN 30 WEAPONS FIXED
The user has requested fixed assignment of more than 30 weapons on target number (1). This target does not have terminal ballistic missile defenses and only the first 30 weapons are fixed to the target. The remaining requests for this target are ignored.

10. UNSATISFACTORY PROGRESS. RUN TERMINATED
After three full passes through the target list the value of PROGRESS is less than 0.75. The probability that the allocation process will converge to the correct stockpile at this point is very low. The job is therefore terminated. There are a large number of conditions which can cause this problem. A close check on the values of the target and planning factors should be made to see if the desired values are being used. If a run of this function with all default user input parameters does not remove this problem, consult a maintenance programmer.

11. DISK SPACE UNAVAILABLE. EXECUTION TERMINATED
Not enough space to open a WPNTGT file; rerun the job.

12. (1) ERROR ON WEAPON-TARGET INTERACTION FILE
NO. (2) NAMED (3)
5 REWRITES WILL BE ATTEMPTED
An error has occurred in writing the weapon-target interaction scratch file number (2) named (3). The error (shown by (1)) is either PARITY or EOF (end-of-file encountered). The program will attempt to rewrite the information 5 times. If all attempts are unsuccessful the job will abort.

13. IRRECOVERABLE I/O ERROR ON DISK. JOB TERMINATED
The program is unable to read or write information on one of the weapon target interaction disk files. The job is terminated with a memory dump.

14. PARITY ERROR ON WEAPON-TARGET INTERACTION FILE
NO. (1) NAMED (2)
3 REREADS WILL BE ATTEMPTED

Figure 76. (Part 3 of 4)

4.5.5 Schedule of Weapons Delivered. This table is a summary by weapon category and target type of the expected number of weapons actually delivered to targets (see figure 91). The entries in this summary are similar to those printed in the preceding summary. The number of weapons delivered is computed as the number of weapons allocated (as displayed in the schedule of weapons allocated) times the average delivery probability for each weapon function/target type combination. Thus, fractional weapon entries in the schedule of weapons delivered arise from two sources. First, the allocated weapons are divided among target types within complexes according to the proportional scheme described in the preceding section, Schedule of Weapons Allocated. Second, the average delivery probability may produce a number of weapons "delivered" that is not an integer. The number printed in this print is the expected number delivered. For example, if 3.0 weapons were allocated to a target type and the average delivery probability is 0.8, then the expected number of weapons delivered is 3.0 x 0.8 = 2.4.

4.5.6 Scheduled Megatonnage. This summary depicts the scheduled megatonnage for each target class and type by weapon category. It is illustrated and described by figure 92. Fractional entries in this summary arise from the same source as that described in Schedule of Weapons Allocated.

4.5.7 Delivered Megatonnage. This summary is identical in format to the previous one, except that it depicts expected actual delivered megatonnage (see figure 93). Fractional entries in this summary arise from the same sources as those described in Schedule of Weapons Delivered.

4.5.8 Allowable Weapon Type Names for WPNMODIF. Normally, the first time EVALALOC is run for a given weapon allocation, the user does not alter weapon or target parameters. To help the user in subsequent runs, the following print of allowable weapon type names (i.e., the type names processed during this evaluation) is provided. This message is printed immediately after the Schedule of Weapons Delivered summary, as shown below:

ALLOWABLE WEAPON TYPE NAMES FOR WPNMODIF

SS-6 SS-7 SS-8 SS-9 N-3 N-5 BADGER BISON BEAR

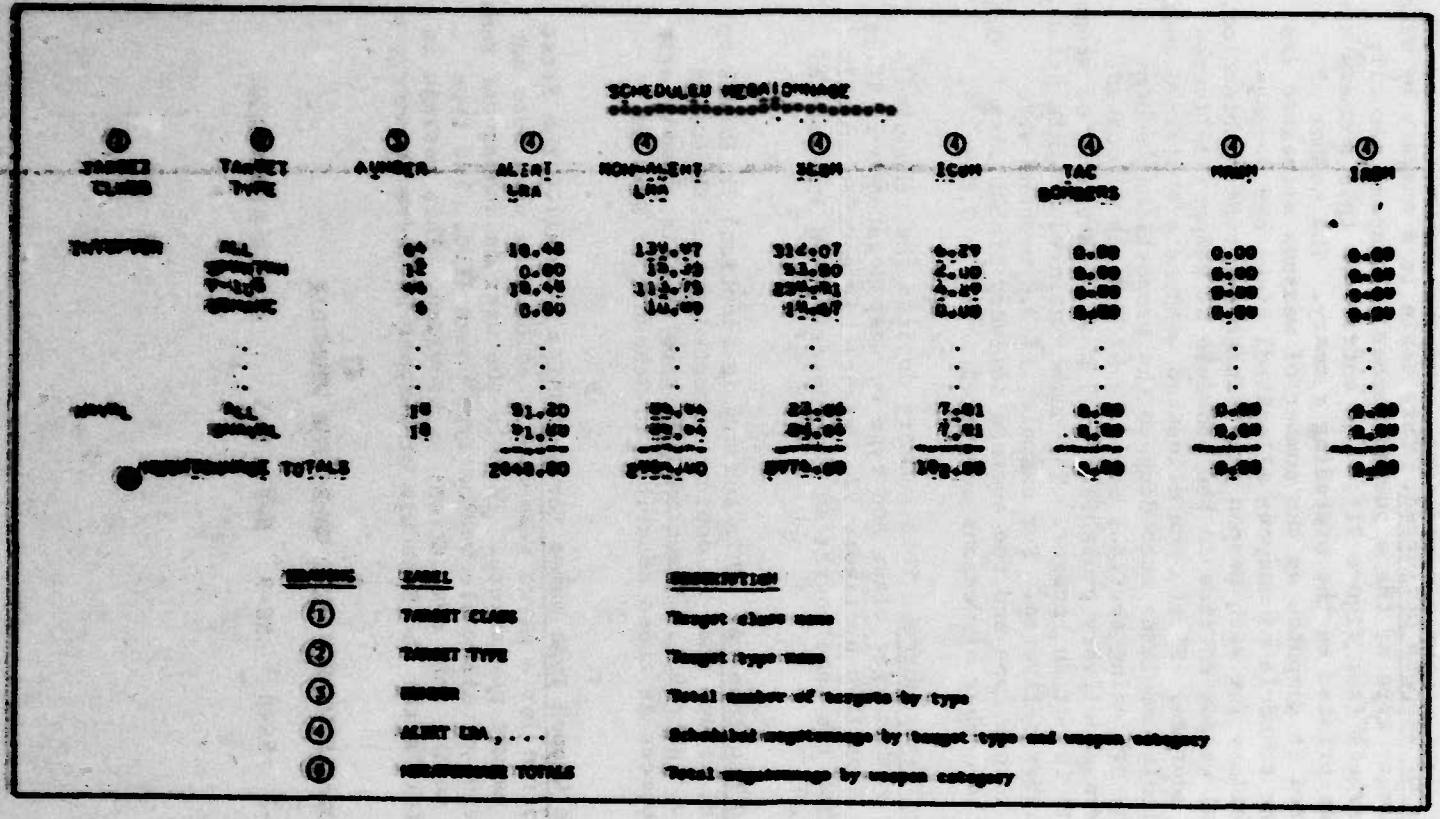


Figure 92. Scheduled Megatonnage

DELIVERED MEGATONNAGE

① TARGET CLASS	② TARGET TYPE	③ NUMBER	④ ALERT LRA	④ NON-ALERT LRA	④ SLBM	④ ICBM	④ TAC BOMBERS	④ MRBM	④ IRBM
INTCPTOR	ALL	64	1.99	2.53	201.12	0.40	0.00	0.00	0.00
	SPARTAN	12	0.00	0.37	34.06	0.13	0.00	0.00	0.00
	F-10S	46	1.99	2.12	154.47	0.27	0.00	0.00	0.00
	BOMARC	6	0.00	0.05	12.59	0.00	0.00	0.00	0.00
	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.
NAVAL	ALL	18	28.42	6.89	19.44	0.50	0.00	0.00	0.00
	SNAVAL	18	28.42	6.89	19.44	0.50	0.00	0.00	0.00
⑤ MEGATONNAGE TOTALS			1506.33	252.45	2007.22	12.10	0.00	0.00	0.00

HEADING	LABEL	DESCRIPTION
①	TARGET CLASS	Target class name
②	TARGET TYPE	Target type name
③	NUMBER	Total number of targets by type (ALL represents the total within the class)
④	ALERT LRA, . . .	Scheduled megatonnage by target type and weapon category
⑤	MEGATONNAGE TOTALS	Total megatonnage by weapon category

Figure 93. Delivered Megatonnage

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11. LPLAN GT. LTOT, LGRP = L1 CORRIDOR = L2

This message is printed when the total number of bomber events is less than the number of planned events on a PLANTAPE record for a bomber. The number of planned events is then set to zero and processing continues. L1 is the bomber group number and L2 the corridor number. Program PLANOUT will need the attention of a maintenance programmer.

12. UNPACK UNABLE TO REDUCE NUMBER OF WEAPON GROUPS ON TARGET I, ABORT.

I is the target index number. This message is printed when more than 30 weapons on the PLANTAPE are assigned to the same target and UNPACKER is unable to find weapons belonging to the same weapon group so that it can compress or reduce the number of weapons or weapon groups to 30 or less. The run is aborted, and the data base may need to be modified.

13. PACKED SCRATCH FILE OUT OF SYNCH WITH ALOCTAR FILE ON TARGET I HAVING INDEXNO J. ALOCTAR TARGET IS K AND HAS INDEXNO L.

I is the target number on the current ALOCTAR record, J is the index number of the target, K is the target number on the current scratch file record, and L is the target index number. This message is printed by subroutine UNPACKER when the target number or target index number on the ALOCTAR file exceeds that found on the scratch file record. The run is aborted, and output from PLANOUT and ALOC for the targets should be checked to determine the problem. Attention of a maintenance programmer may be required.

Figure 95. (Part 3 of 3)

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War Gaming, Resource Allocation

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
The computerized Quick-Reacting General War Gaming System (QUICK) will accept input data, automatically generate global strategic nuclear war plans, provide statistical output summaries, and produce input tapes to simulator subsystems external to QUICK.

The Users Manual consists of four volumes which are intended for the user/analyst who is concerned with preparing the data base for a war game, selecting optional features of QUICK, designating control parameters, submitting computer jobs, and analyzing computer output. This volume, Volume III, provides detailed

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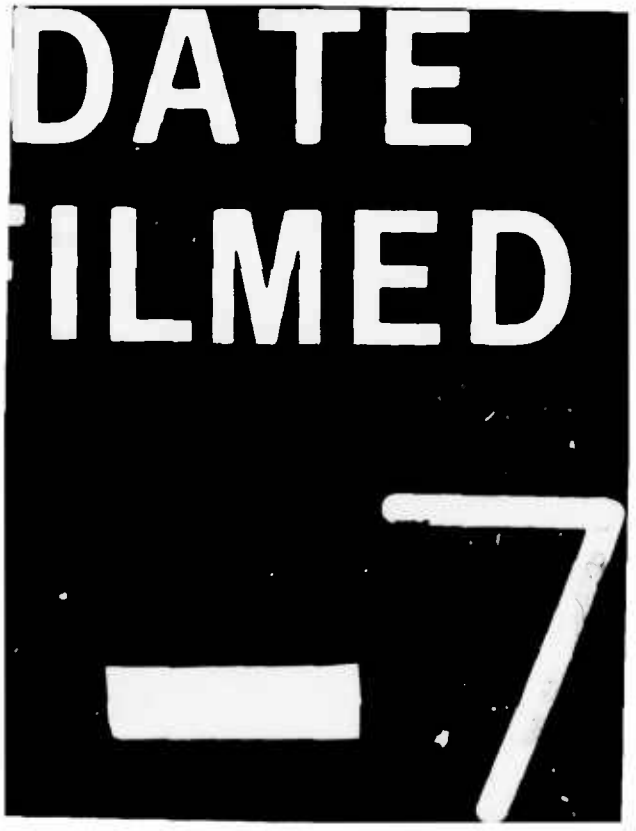
20. ABSTRACT (Continued).
instructions for execution of the Weapon Allocation Subsystem and the modules it comprises.

The Users Manual complements the other QUICK Computer Manuals to facilitate application of the war gaming system. These manuals (Series 9-77 for Volumes I & II, Series 9-74 for Volumes III & IV) are published by the Command and Control Technical Center (CCTC), Defense Communications Agency (DCA), The Pentagon, Washington, DC 20301.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